

IN THE CLAIMS:

1. (Previously Amended) A device to carry out measurements in a vacuum chamber, in particular to measure thin layers, with a case, exhibiting at least one measurement window, to receive a measurement system, comprising:
 - a two part case with a first part of the case, which projects into the vacuum chamber, and a second part of the case, which is located outside the vacuum chamber,
 - means for the sealing and moveable arrangement of the case in the wall of the vacuum chamber,
 - an adjusting unit, engaging with the case, and
 - a counterpull device, engaging with the second part of the case.
2. (Previously Amended) A device, as claimed in claim 1, wherein the means for the sealing and moveable arrangement of the case comprise bellows, resting against the outside of the wall of the vacuum chamber.
3. (Previously Amended) A device, as claimed in claim 1, wherein the counterpull device is a negative pressure chamber, adjacent to the second part of the case.
4. (Previously Amended) A device, as claimed in claim 3, wherein the negative pressure chamber is connected from the viewpoint of pressure to the vacuum chamber.
5. (Previously Amended) A device, as claimed in claim 3, wherein the performance of the adjusting unit is designed according to the weight of the case and the measurement system.
6. (Previously Amended) A device, as claimed in claim 1, wherein the measurement system is disposed in the second part of the case, which is

separated from the viewpoint of pressure from the first part of the case.

7. (Previously Amended) A device, as claimed in claim 1, wherein the first part of the case is a vacuum adapter.
8. (Previously Amended) A device, as claimed in claim 1, wherein the measurement system comprises at least one light source or light feed and at least one detector.
9. (Previously Amended) A device, as claimed in claim 8, wherein the first part of the case is designed as a vacuum adapter and exhibits a common beam tube for at least one incoming and at least one outgoing beam.
10. (Previously Amended) A device, as claimed in claim 9, wherein the measurement window comprises a prism and / or a lens system.
11. (Previously Amended) A device, as claimed in claim 9, wherein the vacuum adapter terminates with at least one vacuum window on the end of the beam tube facing the measurement system.
12. (Previously Amended) A device, as claimed in claim 11, wherein a polarizer is attached on the beam tube interior or beam tube exterior of the prism system of the vacuum adapter.
13. (Previously Amended) A device, as claimed in claim 9, wherein in the beam tube of the vacuum adapter deflecting prisms or mirrors are disposed inside the vacuum adapter.
14. (Previously Amended) A device, as claimed in claim 1, wherein the measurement system exhibits a measuring unit and an adjusting unit comprising at least one light source and at least one position sensitive detector.

15. (Previously Amended) A device, as claimed in claim 14, wherein the adjusting unit exhibits an adjusting laser, a beam splitter and two position sensitive detectors.
16. (Previously Amended) A device, as claimed in claim 1, wherein it exhibits a rotating table as the sample table.
17. (Previously Amended) A device, as claimed in claim 16, wherein the rotating table is arranged on a linear table, whose direction of motion runs radially to the rotating table.
18. (Previously Amended) A device, as claimed in claim 16, wherein the deflecting prisms or mirrors are spaced in such a manner relative to the rotating table that they can be moved linearly in the radial direction of the rotating table.

Claims 19-21 (Cancelled).